

**ABSTRACT**

The present invention is directed to a system for recovering metal values from metal-bearing materials. During a reactive process, a seeding agent is introduced to provide a nucleation site for the crystallization and/or growth of solid species which otherwise tend to passivate the reactive process or otherwise encapsulate the metal value, thereby reducing the amount of desired metal values partially or completely encapsulated by such material. The seeding agent may be generated in a number of ways, including the recycling of residue or the introduction of foreign substances. Systems embodying aspects of the present invention may be beneficial for recovering a variety of metals such as copper, gold, silver, nickel, cobalt, molybdenum, zinc, rhenium, uranium, rare earth metals, and platinum group metals from any metal-bearing material, such as ores and concentrates.